Ecmo in change-from ultima ratio to first line therapy an interdisciplinary approach

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Background: Since the first successful operation with left heart bypass performed by Dodrill in Michigan in 1952 (The Michigan Heart) and the first successful application of the heart lung machine in 1953 performed by Gibbon the extracorporeal circulation has become a conditio sine qua non in cardiac surgery. Through the last decades extracorporeal circulation has become an important therapeutic tool not only in cardiac surgery. It is used in several indications in neonatology, pediatrics, oncology, and vascular surgery. The most important indication next to cardiac surgery is the use as ECMO in intensive care medicine to treat patients with ARDS, cardiac failure, severe lung embolism and sepsis.

Methods: Between January 2005 and April 2012, 311 ECMO were implanted in our hospital. In 79 patients a venovenous System was implanted, in 230 patients we performed a venoarterial ECMO and in 2 patients we used a second venous approach as a venovenousarterial ECMO. Different Oxygenators (Quadrox®, ECCO®, Eurosets®and Medtronic®) and different Systems.(Levitronics®, Medtronic®, Lifebridge®, Medos®and Cardiohelp®) were used.

Results: The average survival in Patients allover is 46%. The highest survival rate is shown in the department for cardiac surgery with 68%. The highest Mortality is shown in the department for internal medicine with 66%. Different Indications, Risk factors, time of Implantation and learning curve might be some reasons for this difference in outcome. It is also shown that we could decrease Mortality in Patients treated with an ECMO in cardiac surgery through the last 5 Years from almost 80% to 32 %.

Conclusion: ECMO has become an important therapy part in the management of different medical emergencies such as ARDS, cardiogenic shock, severe lung embolism and sepsis. By increasing in hospital experience in hemodynamically and respiratory compromised patients we established an interdisciplinary ECMO program and decreased mortality in such emergencies. These new technologies are expanding the potential applications for ECMO in exciting ways, including new patient populations and the ability to make ECMO mobile for both intra-and inter-hospital transport. The team approach between Cardiac surgery, Anesthesia, Perfusion and internal medicine was not only a gain on security it is an option to develop ECMO further.

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Older children at time of norwood operation have ongoing mortality vulnerability that continues after the cavopulmonary connection

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Background: Delayed 1st stage palliation of children with hypoplastic left heart syndrome (HLHS) and related pathologies can be associated with poor outcomes due to development of progressive pulmonary vascular disease) and volume load effects on systemic ventricle and atrioventricular valve (AVV). We examine current era survival of this patients' subgroup.

Methods: Fifty-five infants >2 weeks old underwent Norwood surgery (2003-07). Separate competing risks analyses were performed to model outcomes (death, transition to next stage) after Norwood and after bidirectional cavo-pulmonary connection (BCPC).

Results: Median age was 32 days (range:15-118). 47% had HLHS, 53% had other complex univentricular variants. Mean ascending aorta was 4.4 ± 1.9 mm, 10% had impaired ventricle function, 11% moderate AVV regurgitation, 32% restrictive pulmonary venous return. Pulmonary blood flow was established via aortopulmonary shunt (30) or Sano shunt (25) Following Norwood, patients required longer ventilation, more oxygen & nitric oxide and had higher inotropic scores compared to traditional management protocol. Competing risks analysis showed that 2-years after Norwood 39% had died and 57% underwent BCPC. 4-years after BCPC, 15% had died and 85% underwent Fontan operation. Overall 3 years survival post-Norwood was 53%. Factors associated with mortality were age, lower weight at Norwood, impaired ventricular function, longer circulatory arrest and lower pre-BCPC saturation.

Conclusions: Children >2 weeks old undergoing Norwood operation frequently require postoperative pulmonary vasodilatation and high inotropic support. A significant hazard of death persists through all steps of multi-stage palliation. Elevated pulmonary vascular resistance, volume load effects such as systemic ventricle impairment and AVV regurgitation are commonly evident in patients who fail or don't qualify to proceed to next stage palliation. Those patients should be closely monitored for timely referral for heart transplantation when indicated.

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The impact of patient's gender and cultural factors in prehospital delay in patients presenting with myocardial infarction in KSA

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Introduction: Many factors have been implicated in patients' decision to seek care in MI, but most research has a Western origin and it is possible that reasons for delay differ in Arab cultures. Our study aimed to explore